

T News Letter **TDARS**

G3ZME
G6ZME

TELFORD AND DISTRICT AMATEUR RADIO SOCIETY

www.TDARS.org.uk

FOUNDED 1969

www.TelfordHamfest.co.uk

Issue 278

April-May 2017

www.TDARS.org.uk

Programme

www.telfordhamfest.co.uk

April 19 'Memoirs of a Cellular Field Engineer': guest speaker John Puddifoot G8JJF

April 21-23 *International Marconi Day event (Fri-Sun) GB8MD at Tywyn (M0JZH et al)*

April 26 'Coaxial Cables and Connectors' by Paul G8AQA

May 3 First-in-the-Month Committee meeting and GX3ZME on the air

May 10 Visit to Criggion Radio Station 8pm. Host Robert Pearce—SatNav SY5 9BE

May 17 One Valve super regen. Receivers: Guest speaker John Bumford G8GTN

May 21 (Sun.) *Eaton Manor Vintage Car Rally— for Macmillan Shrops. G7ACD*

May 24 Ten Minute Topics —by members, for members. (incl: intro to DFing)

May 31 1st. Foxhunt of the 2017 series. 144.600 MHz FM. LWVH Field.

June 7 First-in-the-Month Committee meeting and GX3ZME on the air

June 14 DMR Radio—Guest speaker G4VZO—tbc

June 17/18 (weekend) *G3Z 50 MHz Trophy Contest. Long Mynd 14:00 to 14:00z*

Contact Simon G0UFE to join in and for further information.

June 21 SOTA update—Paul M0PLA, M0JZH. VHF NFD preparation—G3UKV et al

June 28 B-B-Q on the LW Field (behind the Huntsman).

July 1-2 *VHF NFD from Long Mynd IO82NN. Arrive on site from 10:15 BST Saturday.*

Contest times 14:00-14:00 UTC. Details Martyn G3UKV

July 5 First-in-the-Month Committee meeting and GX3ZME on the air

July 12 2nd. Foxhunt of the 2017 series. Start 7:30pm LWVH Car Park—on foot.

For Amateur Radio Exam Training—enquiries to Mike G3JKX (01952 299677)

For Morse Training and Morse Proficiency Tests Martyn G3UKV or Eric M0KZB.

For Equipment Loans & Returns contact Don M0TBQ.

[Radio Amateur Exams- Latest: www.tdars.org.uk/html/training.html](http://www.tdars.org.uk/html/training.html)

VILLAGE HALL, MALTHOUSE BANK, LITTLE WENLOCK, TELFORD, SHROPSHIRE. TF6 5BG

Qtc: News & Information



TDARS MEETINGS EVERY WEDNESDAY AT LITTLE WENLOCK VILLAGE HALL UNLESS INDICATED OTHERWISE ON THE FRONT PAGE PROGRAMME. ROOM BOOKED FROM 7PM - 10PM.

If Junior Hamsters group meeting, please do not enter before 7:45pm MEETINGS USUALLY COMMENCE AT 8PM

Please note: A current membership card must be shown to borrow TDARS equipment. Please return borrowed equipment promptly .

The **TDARS AGM** took place at the end of March. Last year's AGM Minutes were read and approved, and then Eric M0KZB reminded his audience of all the Club had undertaken and achieved over the previous 12 months. Several members added their own contributions—which added up to quite a long list of speakers, presentations, portable activities, contest successes, relaunched Website, construction evenings, active membership involvement—as good as any other in the country as a whole; not forgetting Speedy's refreshments, GB3TF upgrade, Midlands winner Club of the Year award (3rd National-ly). The launch and development of the "Hamsters" group was particularly successful and noteworthy. Eric thanked all those present, and particularly the Committee for all their contributions. As Treasurer (since 1983 !—Ed) Jim G8UGL reported a successful year, with about 45+ members on the books, and steady income from subs, sales (including the IC756) and the HamFest. Outgoings included the repair of the trailer, venue rent, broadband rental, insurance and hardware for GB3TF. As a result, it was recommended that **subs would remain the same as last year—adults £30, 'non-earners' £24, full-time students £16, and free for under 16s.**



The **Committee elections** then followed, resulting in only a couple of changes (see bottom of page 2). Graham G7LMF was welcomed onto the committee, and his previous role as deputy curator/GX3ZME OTA during Committee meetings was taken by Mike G6DFD. Mike G3JKX chose to retire (again!) from the committee, but of course is still active undertaking training for the Foundation, Intermediate and Full amateur radio licences.

Finally, the various Trophies were awarded. Eric M0KZB was awarded the **Jack Hassall** trophy for his services over the past year as Chairman and for his great work getting the young Hamsters group going on Wednesday evenings. The **Syd Poole G3IMP trophy**—'operating in the spirit of amateur radio' - was awarded to Paul M0PLA for his outstanding mountain-topping ventures for SOTA in recent months—he was clearly surprised by this unexpected award! The **Under-a-Fiver Construction** award went to Dave G8VZT for his 4/6 metre ATUs, and the **Main Construction Trophy**

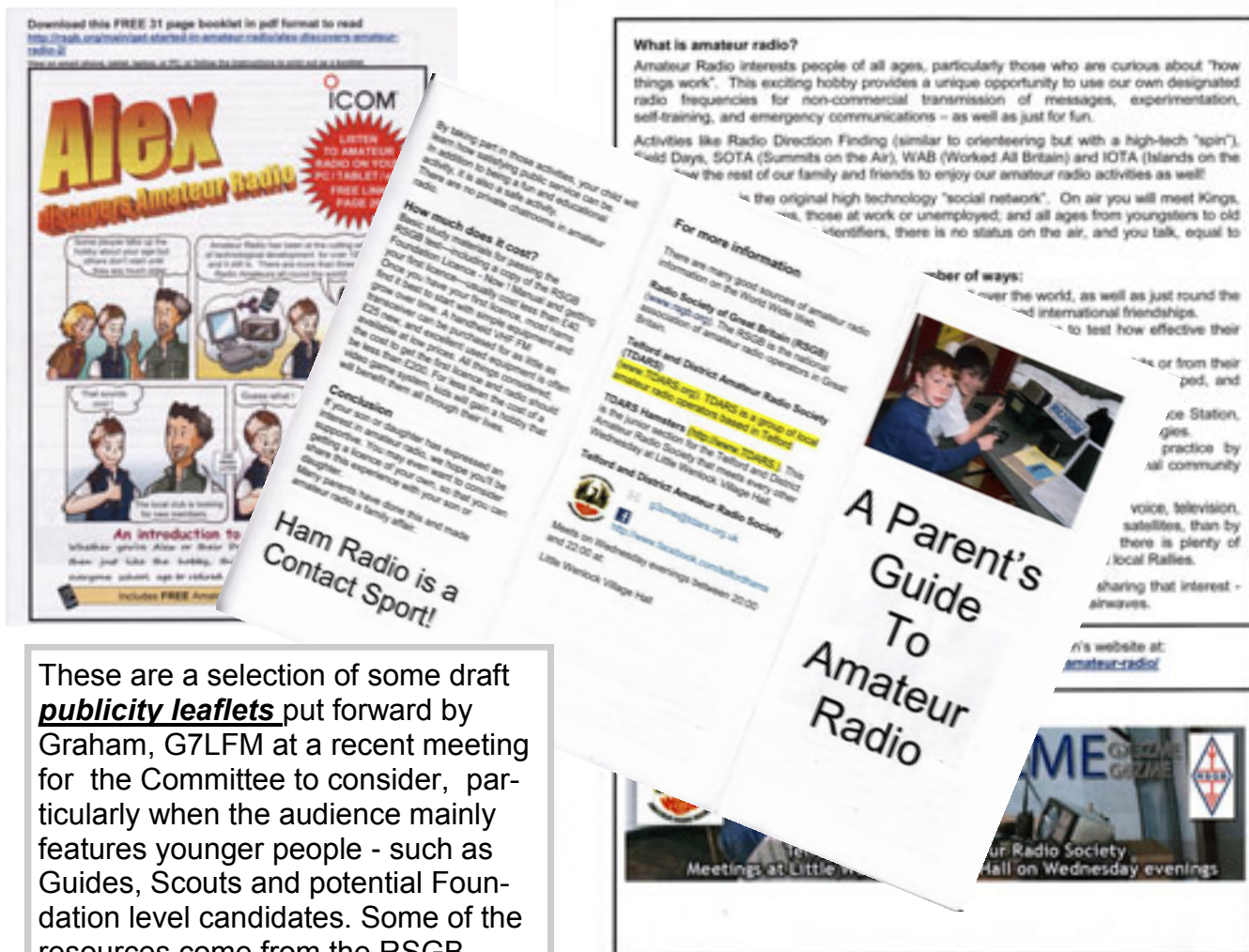


Paul M0PLA
SOTA on Cadair
Berwyn



Paul 'PLA' receives the Syd
Poole Trophy for operating

went jointly to Paul G8AQA and Heather M0HMO for their joint project in creating a unique flow-solder soldering station. More pics page 5



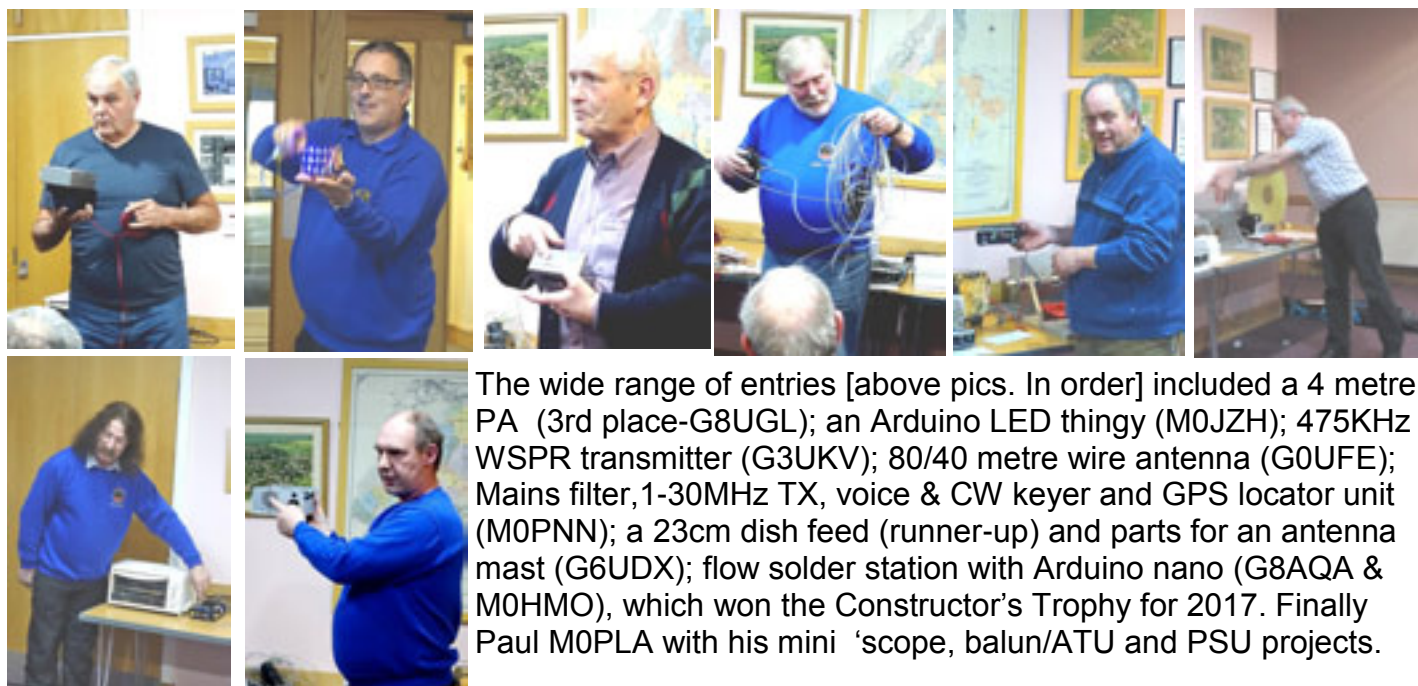
These are a selection of some draft **publicity leaflets** put forward by Graham, G7LFM at a recent meeting for the Committee to consider, particularly when the audience mainly features younger people - such as Guides, Scouts and potential Foundation level candidates. Some of the resources come from the RSGB, whilst Graham has also created much of the text himself. Final versions are expected in the near future.

GB3TF has been a bit erratic at times—although the Repeater itself has operated faultlessly. The problem has been with the PC / Wires-X controlling software, which occasionally ‘hangs up’ with the message ‘Program Stopped’, which is not very helpful. Jim ‘UGL’ removed the entire installation early in April, and carried out some software/firmware updates, and since April 12th it has been returned to Service. So far, so good

The use of a ‘**Webinar**’ presentation at the club by Shabaz Yousef in April went ahead as planned. It is a professional system like Skype that permits voice and vision to be transmitted via the Internet, but also ‘screen sharing’, which is very useful. This has become practical now that we have a broadband connection at the club QTH. Shabaz’s presentation was based around the Eagle software that is designed to build up electronic circuits that can then be turned into a practical PCB layout, ready for etching. The range of options is truly fantastic, and the software is available for free download. Shabaz concluded his presentation with a short Q & A session. The only problem we had was with the audio at our end, since the power supply for the club’s PC speakers was missing, but plans are afoot to fix this for the future.

Preparation for the **2017 Telford HamFest and G-QRP Convention** is moving ahead. The Holiday Inn in Telford Centre has been booked for the Social and Buildathon on Saturday evening, and we hope to add to our usual traders and exhibitors with those who have attended the Rishworth convention in past years. The Buildathon will be led by Steve Hartley G0FUW who is very well known and respected indeed; he ‘invented’ the Buildathon concept at Bath.

A few shots from the annual **Construction Competition** (thanks photos Bob 'RJS')
 — just add your own captions ! [G8UGL,M0JZH,G3UKV,G0UFE, M0PNN,G6UDX,G8AQA]



The wide range of entries [above pics. In order] included a 4 metre PA (3rd place-G8UGL); an Arduino LED thingy (M0JZH); 475KHz WSPR transmitter (G3UKV); 80/40 metre wire antenna (G0UFE); Mains filter, 1-30MHz TX, voice & CW keyer and GPS locator unit (M0PNN); a 23cm dish feed (runner-up) and parts for an antenna mast (G6UDX); flow solder station with Arduino nano (G8AQA & M0HMO), which won the Constructor's Trophy for 2017. Finally Paul M0PLA with his mini 'scope, balun/ATU and PSU projects.

As part of the members' "**10 Minute Talks**" (May 24), there will be a short description, with practical guidance, for this year's 2 metre local DF hunts during the summer months. The following week (May 31) the first of the DF (direction finding, or 'foxhunt') hunts will take place in the LW Village Field area, meeting at 7:30 pm.

Final Appeal from John M0JZH:- "Arriving after midday on Friday 21st April at Marconi Bungalows Field, Tywyn, Mid Wales LL36 9HN: **International Marconi Day takes place on Saturday 22nd April** from 00:00utc until 23:59 **UTC**, before packing up and departing Sunday morning.

It is now customary to stop off for breakfast in a café on the way home – so how about it?

Previous years have been great fun, and it is great to be the operator that everyone wants to speak with rather than trying to reach that operator. The camaraderie on site is light hearted and we try to make it interesting and informative for all who arrive. Whether as an operator or a spectator you will be made welcome.

If you are staying over, then please note we do not provide food / accommodation / facilities.

Please arrange everything that you need including your chair. We can provide a patch of grass for you to put your tent up (no charge) if you like.

Any questions or queries please contact John M0JZH either at the club or via m0jzh@yahoo.co.uk. Many thanks – look forward to seeing you there. [GB8MD QRZ Page](#) "



And e-mail from **Simon MW0NWM**

"Hi Mike and all members of TDARS,

I hope you have an enjoyable weekend at Tywyn old Marconi Receiver Site. Dragon ARC will be operational from Waunfawr not far from Llanberis which was Tywyn's sister transmitter site. We hope to work you on the LF and MF bands!

However Mike, it is important to note that Tywyn is located in the far south of Snowdonia National Park in the county of Gwynedd. This is in North and not Mid Wales!

Enjoy. 73 Simon - Chair of Dragon ARC and friend of TDARS "

From **Dave G0CER** "The upcoming contest on the 18th March by **BARTG** has had the results published from last year- we did this as a demo but sent in an entry anyway. G3Z came 86th out of 93 entries for this 6 hour section, with 16 QSOs, it's a start. I went home and did a 6 hour entry and getting 68 QSOs and came 42 showing that not too many more QSOs to make a big difference. (Dave's E-mail 8 March - so 2017 entry results from LWVH awaited—Ed)

The **TDARS microwave group** (G8UGL, G3UKV, G4NKC and G8VZT) travelled across to



Martlesham (Suffolk) in April to collect two trophies won over the summer months of 2016, operating from the Brown Clee most months, but Guernsey island in June. We were pleased that Heather and Paul (M0HMO, G8AQA) were also in the audience. Jim accepted the 10GHz trophy, whilst Martyn



LtoR: G3UKV, G8VZT, G4NKS, G8UGL

collected the 5.7 GHz trophy on behalf of TDARS from the UK uWave Chairman Sam G4DDK. As you can see from the photos, some of us received instant tattoos from the video projector!

A brief note from Martin 2E0TRO who acts as our liaison officer with LWWH Committee. After a short respite at the end of last year, the Treasurer of that committee, **David Taylor**, died recently, and we expect a new treasurer to take his place in due course. Our condolences to his family.

Most members know that as well as the 70cm voice (Fusion) repeater which operates from our premises, there are **4 microwave propagation beacons** operating continuously from Little Wenlock. They operate on the 2.32, 3.4, 5.7 and 24 GHz bands, and are licenced with the common call-sign GB3ZME. After the Doris storm in February, John 'JZH' observed that the 2320MHz beacon antenna had come adrift as shown. On closer inspection, we discovered that the plastic cylinder and support covering the slotted waveguide ('Alford slot') must have disintegrated due to UV some while ago. This was given some TLC, and is now repaired and back on song. Thanks to those members who helped to remove and later replace the antenna. In fact, the beacon transmission itself never failed.



2320.870 MHz
beacon antenna:
Feb. 2017—still
operational !

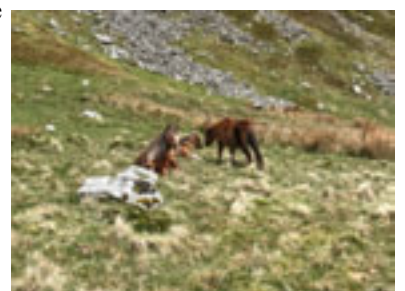
Since early in the year, **Paul M0PLA** has been busy climbing **SOTA** (Summits on the Air) mountains, along with his son Jamie. His latest was a 10 points location—Carnedd Llewelyn. **15th April 2017. GW/NW-002 SOTA Activation visit. Grid SH 684644. Altitude 1064M.**

"Our first attempt at a 10 pointer summit, Carnedd Llewelyn in North Wales. We left Telford (Home QTH) at 08:10 a.m. and headed for Shrewsbury, we had to pick up supplies for the bacon and black pudding rolls for later as yesterday's Bank Holiday Friday left us with no time to shop.

We arrived at our car park grid SH 68510 60281 11:10 a.m. and went to the farm house to pay for parking. It is now £2 and increase from the earlier blogs that I saw that said £1. The farmer that we saw was very friendly and asked where we were heading and asked what route we were taking. He then agreed that was the best route and spent time going over the route with us.

The start of the ascent to get to **Ffynnon Llugwy** (the lake) is around 1.7 miles and a climb off 260 metre; it looks easy but a strain on the legs at the start of the journey and this took us around 50 minutes. Time for some nice photo's and a quick breather before the next 1/2 mile walk and climb of another 200 metres (30 minutes).

The track turned into a near vertical small rock climb near grid **SH 69287 63510** unless we were on the wrong route but I don't think we were as seen on the video below filmed on our Descent. I managed to get to the summit at around 13:35 p.m. and set up my 2m Dipole and started to call CQ SOTA at 13:43 p.m.: wow what a pile up. 25 QSO's in all and 2 S2S's. (summit-to-summit). I must have been asked by at least 5 walking groups today about what I was doing with the things attached to my pack (mast / antenna), it was a great day and we both enjoyed it. We managed to get back to the car for 16:30 p.m. and headed back home." (Blog posted 16/04/2017—Ed Paul's log shows 25 QSOs, of which M0JZH and G7LMF were TDARS members.)



TDARS support Shifnal Cubs - by Paul M0PLA

TDARS members assisted Shifnal cubs with PMR radio for a 5 mile walking event on Friday 24th March. All went really well now the cubs have purchased their own radios (6 in total). Then the night of 31st March, Simon (G0UFE) John (M0JZH), Graham (G7LMF) and myself Paul (M0PLA) arrived at Shifnal Cubs hut at 18:30 p.m. The cubs had already erected two tents for us out on their field, we also had two rooms in their hut to allow us to set up 4 radio stations.

Myself and John set up our portable gear on 2 metres out in the tents and Graham and Simon used their portal gear in the hut on 70cm. By 19:00 p.m. we had 40 cubs, a mixture of boys and girls that got split into 4 groups of 10. These were all accompanied by a cub / scout leaders and they arrived at each radio set up and were then assisted by us to establish a quick greetings QSO with the other group. This included sending their own name in voice and then using the phonetic



alphabet. They also informed their age and a quick chat about their hobbies etc. This all went on over the next hour, - by the end of this we had managed to get all 40 cubs through their Communications Badge.



After this we were invited to have a quick chat with the whole group to give a quick explanation about who we were (TDARS) and a quick information session about what can be achieved with ham radio.

This included info on Cmdr Tim Peake and the ISS and different types of communications (packet, voice, cw etc). After this we were all thanked by the whole group before we all departed for a debrief.



Des Rogers kindly supplied the photos.

From Mike G6DFD:- "Callsigns beginning with the letter M were originally allocated by the Marconi Company to their own ships and land stations. After the 1912 London Radio Conference, countries were assigned their own international call-sign prefix letters, M (and also G) thenceforth established British identification. It is believed that the Tywyn Marconi station was assigned the call letters MUV.

TDARS Trophy Winners—past 5 years.

Trophy	Jack Hassall	Syd Poole G3IMP	Main Construction	Beginners Construction	Under-a- Fiver	Fox Hunt (DF)
2013	2E0CHV	M0JZH	G3UKV	————	G0ASP	M0RKY
2014	G3JKX	G0UFE	G8VZT	————	G0VXG	G0ASP
2015	M0JZH	M0PNN	M0PNN	M0JZH	M0PNN	————
2016	G0CER	G6DFD	M6CFP	M6CFP	2E0TIL	————
2017	M0KZB	M0PLA	G8AQA? M0HMO	————	G8VZT	————

There is a further page (9) for readers viewing this page on the TDARS Website. It is one of “Mike’s Pieces” (G3JKX) which is an exercise extracted from the Bath Based Advanced Distant Learning course (BBADL) plus Mike’s commentary.

TUNED CIRCUIT (RESONANCE) EXERCISE

Capacitor Value: 99pF, Inductor Value: 25µH

Frequency (MHz)	Value of X_L (Ω)	Value of X_C (Ω)
1	1571	1571
1.25	1257	-
1.50	1032	-
1.75	891	-
2	785	785
3	523	523
4	393	393
5	314	314
6	262	262
7	225	225
8	196	196
9	175	175
10	157	157

Note: Starred red values were not asked for in the assignment but are included for accuracy of capacitive reactance response curve.

$$f = \frac{1}{2\pi\sqrt{LC}} \text{ Substituting L and C values above, gives: } f_r = 3.2 \text{ MHz}$$

Mike's Piece on L, C, f and Z

Here is an explanation as to why, when an AC frequency changes, Capacitors and Inductors change their impedance (Z), otherwise known as AC resistance!

Capacitors

When AC is applied to a capacitor it charges up in the first quarter of the cycle and then discharges in the next quarter cycle. It then reverse charges/discharges in the next half cycle.

At low frequencies, the charge/discharge time of a capacitor takes much longer than at higher frequencies. So the total charge over a whole cycle is much greater at LF.

Impedance (Z ohms), like DC resistance, equals V/I , at LF, the voltage in the centre of each half cycle (i.e. @ 90° and 270°) is larger than it would be if the frequency was higher. This is because, as the frequency rises, the capacitor charge/discharge times gets progressively smaller. Therefore the charge voltage developed gets smaller and smaller, so V/I (Z) gets progressively smaller. Thus, in a C the Z reduces as the frequency rises and produces a NON-linear graph.

Inductors

Applying a voltage to an inductor causes a current to flow in it. The inductor then begins to develop an increasing magnetic field which itself generates a back EMF which opposes the original current change. As the frequency rises, the SPEED of the current changes gets progressively faster so the back EMF becomes greater.

This means that with the increasing frequency there is, overall, less current flow due to the increase in back EMF. Therefore the impedance 'Z' (V/I) rises as the frequency increases.

This is a linear function, with Z very low at LF, rising in a straight line to VHF and beyond. Changing the size of L merely alters the slope the graph.

Tuned circuit

Where you have a capacitor AND an inductance, in series or in parallel, there will be a frequency where the increasing Z of L will be exactly the same as the decreasing Z of the C. This is the resonant frequency. (see graph) By varying the size of C or L, the resonant frequency can be changed, but most usually with a variable capacitor.

Mike G3RXX

